

**REPORT**

MCCLELLAN-PALOMAR AIRPORT  
FAR PART 150 STUDY UPDATE

PRELIMINARY FORECAST OF  
AVIATION ACTIVITY

PREPARED FOR

**MCCLELLAN-PALOMAR AIRPORT**

URS PROJECT NO. 27653003-01301

**REVISED NOVEMBER 5, 2003**

# **R E P O R T**

## **McCLELLAN-PALOMAR AIRPORT FAR PART 150 STUDY UPDATE**

### **PRELIMINARY FORECAST OF AVIATION ACTIVITY**

*Prepared for*

McClellan-Palomar Airport  
2198 Palomar Airport Road  
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URS Project No. 27653003.01301

Revised November 5, 2003

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## **1.1 INTRODUCTION**

This section presents forecasts of aviation demand at McClellan-Palomar Airport (CRQ) through the year 2013. These forecasts provide the basis for estimating future aircraft operational levels and their associated noise impacts to the land uses surrounding the airport. The forecasts presented in this section were prepared based on historical annual activity through June 2003 and estimated monthly activity through the remainder of 2003.

It should be noted that aviation forecasting consists of educated estimates regarding future activity levels. Although past trends and current industry events provide clues regarding future levels of activity, the actual level of aircraft operations that will occur at CRQ are unknown. Thus, the forecasts presented on the following pages should be reviewed with this fact in mind.

## **1.2 OVERVIEW OF ECONOMIC AND WORLD EVENTS AND INDUSTRY TRENDS**

The challenges currently facing the aviation industry are unprecedented, and most experts agree that the industry is in a crisis. Several major carriers are currently in, or very close to, bankruptcy. Passenger enplanements are significantly lower than recent years in every category of traffic, and prospects for the near-term future are uncertain. Reasons for the dismal state of affairs include the 2001 economic recession, September 11 terrorist attacks, war in Iraq, and a number of other issues. All of these factors could affect future passenger demand and aircraft activity levels at CRQ. A brief summary of these issues is presented in the following paragraphs.

### **1.2.1 Economic and World Events**

#### **1.2.1.1 *Economic Recession***

The U.S. entered its tenth economic recession since World War II in the first quarter of 2001; the recession lasted through the third quarter of the same year. Economic growth since the recession has been erratic, with growth of Gross Domestic Product (GDP) ranging from a high of 5 percent in the first quarter of 2002 to a low of 1.3 percent in the second quarter of 2002. For the calendar year 2002, GDP growth was 2.4 percent, compared to 0.3 percent in 2001 and 3.8 percent in 2000. The present state of the U.S. economy is uncertain. With reported upturns in certain key economic sectors, the short-term outlook is clouded by national and worldwide political turmoil.

#### **1.2.1.2 *September 11 Terrorist Attacks***

The aftermath of the September 11, 2001, terrorist attacks with respect to the aviation industry has decreased passenger demand and increased costs to the airlines significantly. Aircraft activity levels have not yet rebounded to the levels experienced prior to the attacks, and the latest Federal Aviation Administration (FAA) projections indicate that aircraft activity levels will not return to pre-September 11 levels until 2004/2005. Security-related costs have imposed significant new costs on airlines, including mandates for the installation of new cockpit doors. These costs, along with higher labor and fuel costs, have resulted in severe financial losses for most major U.S. airlines.

Because of the lower passenger levels and higher costs, many airlines have reduced their schedules and in many instances substituted service by their code share regional partners for mainline service.

### **1.2.1.3 Middle East Hostilities**

As of September 2003, U.S. military involvement in Iraq is continuing and has had a broad effect across the aviation industry. Nearly all airlines have experienced decreases in passengers and have cut capacity in response. The Air Transport Association (ATA) described the impact of the war as follows in a March 26, 2003, press release:

“In the week preceding the war, traffic moderated slightly. Following the March 16 Azores Summit (between U.S. President Bush and British Prime Minister Tony Blair), however, demand dropped at a pace not seen since the aftermath of the September 11 attacks. Traffic for the week ended March 23 fell 10 percent, led by a 25 percent drop in the Atlantic, a 13 percent drop in the Pacific, and an 8 percent drop in Latin markets. Domestic traffic also fell 7 percent.

Advance bookings for the next 60 to 90 days suggest no relief in sight. Domestic bookings are down more than 20 percent, Atlantic down more than 40 percent, Latin off more than 15 percent, and Pacific more than 30 percent. Airlines have reported that on some days cancellations are exceeding bookings.”

Obviously, the Middle East military efforts will have an effect on passenger enplanements for calendar year 2003. The duration and intensity of the military involvement will determine the magnitude of effect. However, data for the period following the 1991 Gulf War suggests that passenger levels may rebound to pre-war levels within six months of the end of hostilities.

## **1.2.2 Industry Trends**

Because of and in response to recent world and economic events, the aviation industry is undergoing numerous changes. These changes include the continued growth of low-cost carriers, expanded use of regional jets, continued use of the hub and spoke system, and expansion of security procedures. These issues are explored briefly in the following paragraphs, and their ability to positively or adversely affect future activity levels at CRQ is discussed.

### **1.2.2.1 Growth of Low-Cost Carriers**

Low-cost airlines such as Southwest Airlines, JetBlue Airlines, Air Trans, and American Trans Air have continued to gain market share in recent years as business travelers seek less-expensive alternatives. Low-cost carrier service is available at nearby markets such as Los Angeles, San Diego, Long Beach, and Burbank. The proportion of travelers in the McClellan-Palomar market using low-cost air carriers at these surrounding markets instead of service at CRQ is unknown. However, based on data at similar markets, there is a high potential for significant diversion of air passengers in the McClellan-Palomar market.

This factor would tend to indicate slower growth in future years as low-cost carriers in surrounding markets capture a greater share of the market. However, this may be mitigated somewhat because traditional mainline carriers seek to reduce airfares to stimulate passenger demand.

### ***1.2.2.2 Introduction of Regional Jets***

Regional jets are defined as jet aircraft accommodating 35 to 100 passengers. These aircraft have been acquired by commuter airlines to replace their turboprop aircraft, typically providing connecting service to mainline carriers at hub airports. The significance of these aircraft to a market such as McClellan-Palomar is that these aircraft provide a superior level of customer service and convenience in comparison to the turboprop aircraft that they replace. Passengers typically rank regional jet aircraft much higher in terms of comfort because of their low noise and vibration levels in the cabin, as well as the fact that many of these aircraft are boarded via loading bridges, whereas the turboprop aircraft they are replacing are boarded via the ramp. Thus, the passenger is provided with weather protection while boarding the aircraft.

Because of this higher comfort and convenience level, airlines are finding regional jet aircraft are stimulating traffic in markets previously only served by turboprop aircraft. Certain passengers prefer to drive to the connecting hub airport rather than use turboprop aircraft.

### ***1.2.2.3 Continued Use of Hub and Spoke Networks***

Nearly all major airlines in the United States use a hub and spoke route network whereby aircraft from various destinations (the spokes) are flown to a single airport (the hub) to transfer passengers with common destinations to an outbound aircraft. Aircraft arrive and depart the hub airport at a similar time to enable passengers to transfer from one aircraft to another. This type of route network enables passengers from a market such as McClellan-Palomar to reach a greater number of destinations at a greater frequency than would be possible without such a network.

Although airlines are currently experiencing severe financial distress, none have indicated, to date, that the prevailing hub and spoke network will be dismantled. Some airlines, such as American, have instituted hub reforms seeking to improve the efficiency of their hubs by spreading out demand, but the basic structure of the hub and spoke network remains unchanged.

This means that future air service patterns at CRQ are likely to continue to consist of commuter airlines providing connections to nearby major hubs such as Phoenix and Los Angeles. Service to independent locations is unlikely to generate sufficient passengers to be viable economically. This factor indicates that there are few opportunities for additional passenger service in the McClellan-Palomar market.

### ***1.2.2.4 Increased Security Procedures***

In the aftermath of September 11, the FAA implemented stricter security procedures, thereby increasing the amount of time required for passenger screening. Consequently, passengers needed to allow additional time before scheduled departure time for passing through security. This additional time was a significant factor for short trips because travel by car became an even more viable alternative.

In addition to the time factor, certain parties complained of the “hassle factor” associated with commercial air transportation, especially when secondary gate screening was being conducted. However, many of these complaints have since subsided, and security delays no longer appear to be a significant issue with regard to decreasing travel demand. Although aviation security has been and continues to be a major issue in the aviation industry, passenger screening does not appear to have a negative effect on passenger levels as in the months following the September 11 terrorist attacks.

#### **1.2.2.5 *Changing Role of the Regional Commuter Market***

Beyond the effects of low-cost carriers, the regional commuter market is also experiencing dynamic changes to more adequately serve its shifting price-sensitive customer base and to better use its current fleet of aircraft. Such changes and their effects will most likely be more pronounced at CRQ. One current example is the recent reallocation of aircraft by a commuter airline serving CRQ to another larger airport within an expanding market. Changes in the economy, increases in fares, and lack of market leverage present increased pressure on each commuter airline serving CRQ to maintain adequate and viable load factors and profit margins. That said, CRQ may experience unilateral decisions by commuters to limit flight and city-pair offerings, or in the most extreme cases, discontinue service altogether.

### **1.3 HISTORICAL AVIATION ACTIVITY**

A key factor in attempting to predict future trends affecting aircraft operations at CRQ is understanding and analyzing current and past trends at the airport. Therefore, this section examines and documents those trends and provides the basis for the forecasts presented in the following section. Historical data were obtained from airport management records and air traffic control records from the FAA. An assessment of aircraft operations is presented first, followed by an assessment of aircraft fleet mix.

#### **1.3.1 Historical Annual Aircraft Operations**

The FAA defines an aircraft operation as either an arrival or a departure. Under this definition, an aircraft “touch and go” is considered two operations because the aircraft conducts a landing and takeoff during the maneuver. This section includes a distribution of the historical operations.

Historical aircraft operations at CRQ have been recorded in the FAA Terminal Area Forecast (TAF), and FAA Air Traffic Activity Data System (ATADS). Both of these data sources reflect the same historical trend for aircraft operations at CRQ. Historical operations documented by the FAA TAF were used for this review for 1980 through 1989, and the FAA ATADS were used for 1990 through 2002. When logging this data, the TAF and the ATADS separate the annual operations into the following six categories:

- Itinerant Air Carrier (none since 1999)
- Itinerant Commuter/Air Taxi
- Itinerant General Aviation
- Itinerant Military
- Local General Aviation
- Local Military



Table 1.1 and Figure 1.1 present historical total aircraft operations for CRQ from 1980 through 2002. Aircraft operations at CRQ have shown a slight negative trend since 1980, decreasing approximately 14 percent since 1980 and almost 30 percent since 1999. Table 1.2 presents annual local and itinerant aircraft operations, by operational categories, for 1980 through 2002.

**Table 1.1**  
**HISTORICAL TOTAL AIRCRAFT OPERATIONS**

<b>Year</b>	<b>Number of Operations</b>	<b>Percent Change</b>
1980	237,390	-
1981	211,829	-11%
1982	175,740	-17%
1983	195,299	11%
1984	195,237	0%
1985	183,513	-6%
1986	190,345	4%
1987	198,411	4%
1988	201,799	2%
1989	222,720	10%
1990	255,369	15%
1991	220,621	-14%
1992	225,041	2%
1993	217,739	-3%
1994	220,570	1%
1995	204,191	-7%
1996	227,764	12%
1997	245,092	8%
1998	244,969	-1%
1999	291,873	19%
2000	255,096	-13%
2001	221,898	-13%
2002	204,155	-8%

SOURCES

FAA TAF 2002 Scenario, March 2003, for 1980 to 1989.

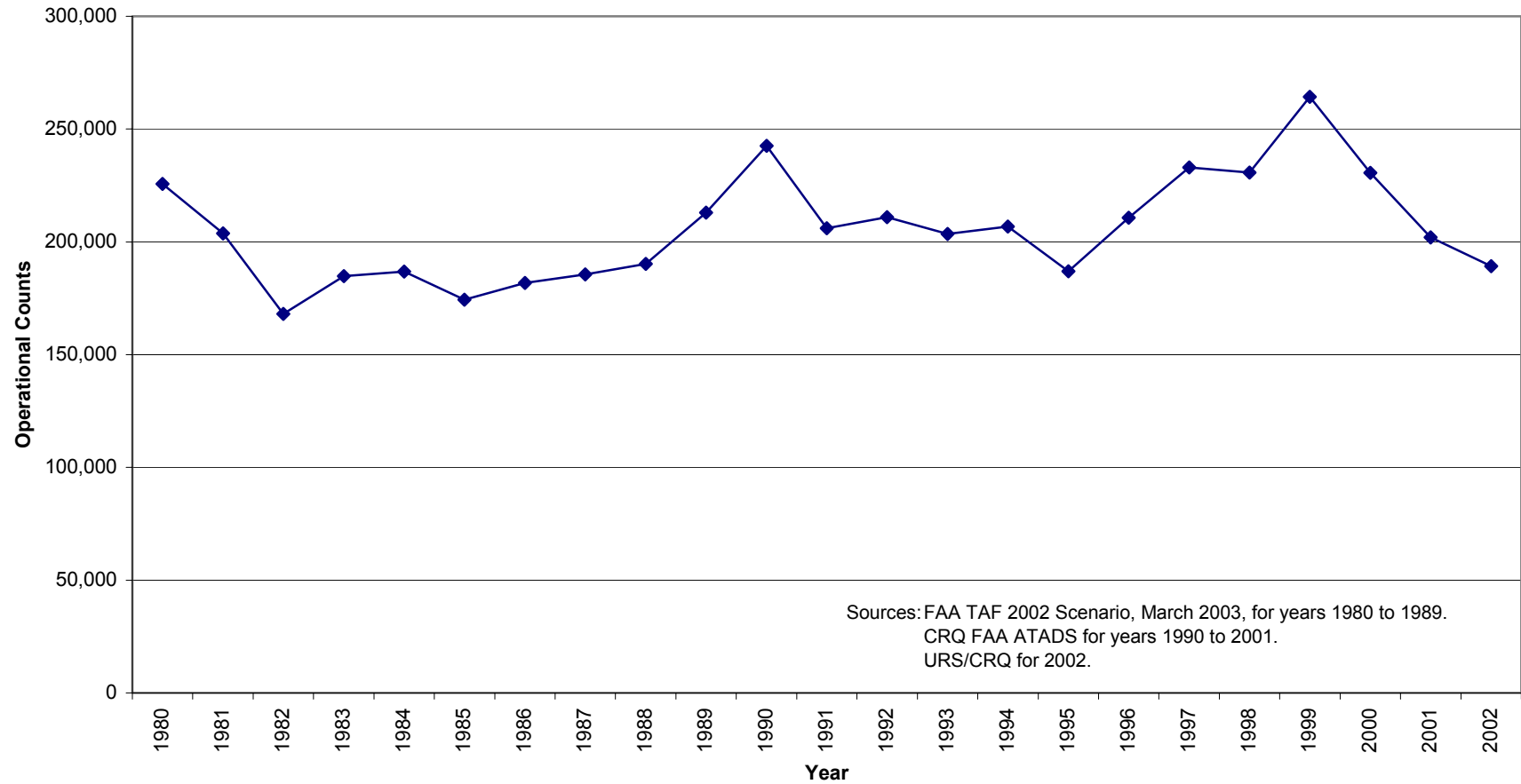
CRQ FAA ATADS, for 1990 to 2001.

URS/CRQ for 2002.

NOTE

TAF data is presented in FAA fiscal years (October through September). Other records are presented in calendar years.

**Figure 1.1**  
**HISTORICAL AIRCRAFT OPERATIONS**



### **1.3.2 Air Carrier Operations**

For traffic-count purposes, an air carrier aircraft is defined as having a maximum passenger seating capacity of more than 60. Since 2000, all scheduled passenger service at CRQ has been provided by commuter aircraft of fewer than 60 seats.

### **1.3.3 Commuter Operations**

Commuter operations at CRQ consist of service by America West to Phoenix-Sky Harbor International Airport, and United Express to Los Angeles International Airport. Commuter operations have increased approximately 148 percent since 1980, an average annual increase of almost 4.2 percent. The airport experienced its highest level of commuter operations in 2000, with 16,545 commuter operations. Historical commuter operations are presented in Table 1.2 and Figure 1.2.

### **1.3.4 General Aviation Operations**

General aviation includes all segments of the aviation industry except for commercial air service and military operations. Typical general aviation activities include pilot training, corporate, and pleasure flying. Operations at the airport are conducted by single- and multi-engine piston aircraft, turboprop and turbojet aircraft, and helicopters.

General aviation operations are recorded as local or itinerant. Local operations, primarily arrivals or departures performed by aircraft remaining in the airport traffic pattern or local training area, are most often associated with training activity and flight instruction. Itinerant operations are arrivals or departures other than local operations performed by either based or transient aircraft.

Table 1.2 and Figure 1.3 present historical general aviation operations separated into itinerant and local operations. On average, since 1980 itinerant general aviation operations have accounted for 59 percent of general aviation activity at CRQ. General aviation activity generally increased from the early 1980s through 1999. Since then, operations have experienced a downward trend beginning in 2000. The reduction of recent general aviation activity at the airport is a direct reflection of the economic downturn. Based on historical trends, local and itinerant general aviation activity will most likely rebound to previous levels mirroring increased economic activity, leading to increased business-related and personal pleasure flight activity.

### **1.3.5 Military Operations**

Military operations at CRQ have fluctuated since 1980, with a high in 1999 of 12,617 operations and a low in 1997 of 1,364 operations. According to air traffic control personnel, military operations at CRQ consist primarily of aircraft performing training operations. Military aircraft using CRQ consist primarily of transport aircraft, such as the C-2, C-9, and C-12, and rotary-wing aircraft, such as the OH-58, CH-53, and SH-60. Historical military operations are presented in Table 1.2.

**Table 1.2**  
**HISTORICAL AIRCRAFT OPERATIONS**  
**BY OPERATIONAL CATEGORY**

Year	Itinerant Operations				Local Operations		Total
	Air Carrier*	Commuter	GA	Military	GA	Military	
1980	0	5,305	117,383	1,433	108,250	5,019	237,390
1981	0	3,369	106,700	1,200	97,057	3,503	211,829
1982	0	5,122	85,072	534	82,919	2,093	175,740
1983	31	8,862	93,756	184	91,033	1,433	195,299
1984	0	6,327	103,433	917	83,427	1,133	195,237
1985	0	7,283	109,750	1,740	64,644	96	183,513
1986	0	6,476	116,339	2,015	65,485	30	190,345
1987	3,596	7,380	120,127	1,876	65,387	45	198,411
1988	0	9,416	127,741	2,018	62,472	152	201,799
1989	0	7,402	143,186	2,244	69,812	76	222,720
1990	38	10,457	154,806	2,125	87,779	164	255,369
1991	0	11,646	139,129	2,784	66,893	169	220,621
1992	0	11,525	135,897	2,521	75,061	37	225,041
1993	0	11,435	134,155	2,721	69,338	90	217,739
1994	0	11,133	135,360	2,448	71,473	156	220,570
1995	1	14,152	131,289	2,787	55,619	343	204,191
1996	14	14,414	144,149	2,304	66,512	371	227,764
1997	58	10,625	159,362	1,104	73,683	260	245,092
1998	4	12,067	150,988	2,030	79,726	154	244,969
1999	12	14,951	180,069	12,458	84,224	159	291,873
2000	0	16,545	152,184	7,888	78,405	74	255,096
2001	0	15,176	131,284	4,629	70,671	138	221,898
2002	0	13,140	126,277	1,892	62,774	72	204,155

## SOURCES

FAA TAF 2002 Scenario, March 2003, for years 1980 to 1989.

McClellan-Palomar FAA ATADS, for years 1990 to 2001.

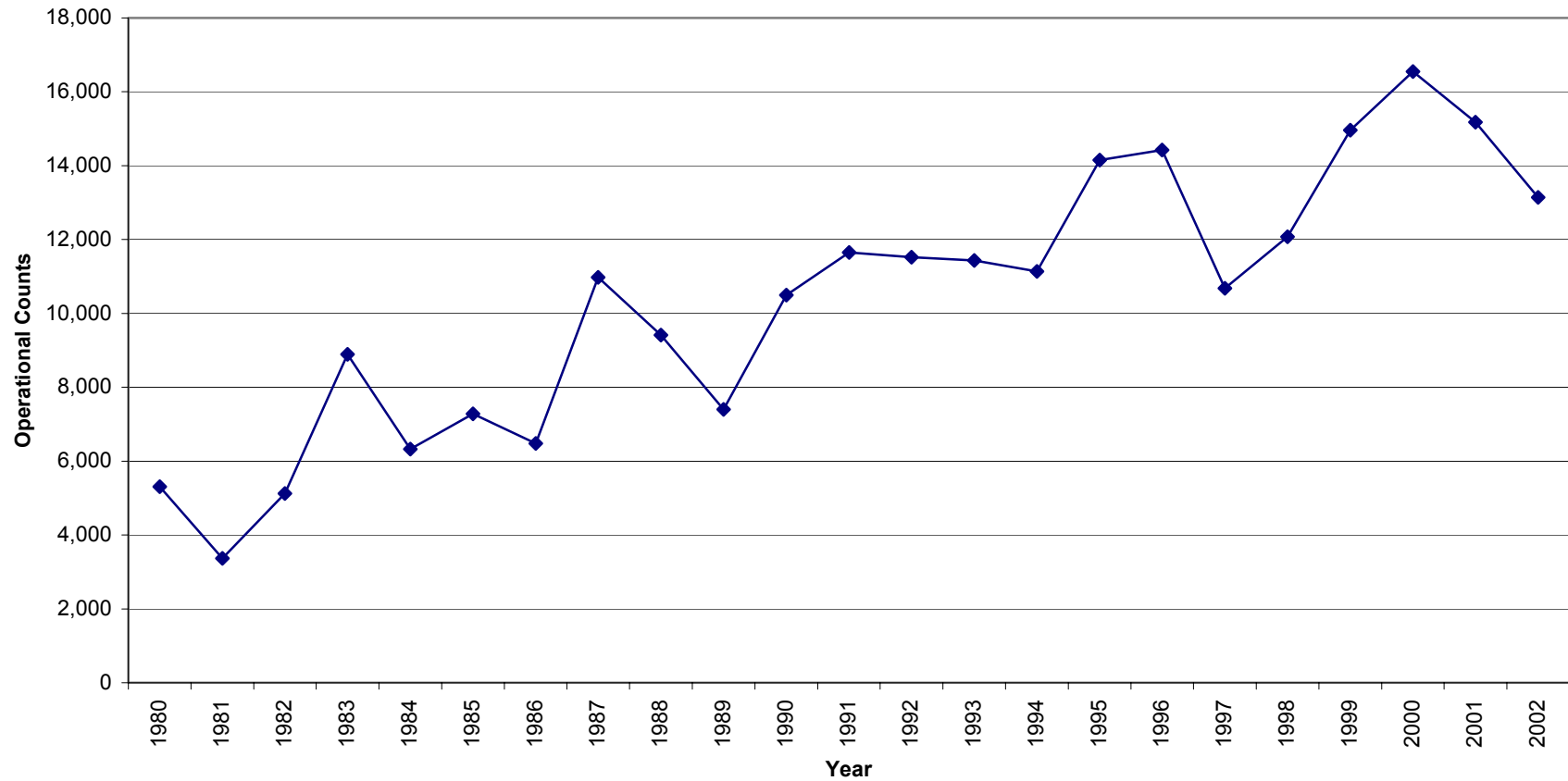
## NOTES

TAF data is presented in FAA fiscal years. Other records are presented in calendar years.

GA = General Aviation

\*CRQ has never had commercial air carrier service (aircraft of 60 seats or more). According to the FAA tower staff, it is likely that nearly all of previous years' counts of air carrier operations were mistakenly classified as air carrier ops and should have been classified as air taxi operations.

**Figure 1.2**  
**HISTORICAL COMMERCIAL OPERATIONS**



**Figure 1.3**  
**HISTORICAL GENERAL AVIATION OPERATIONS**



### **1.3.6 Aviation Forecasts**

This section presents forecasts of aircraft operations and aircraft operational fleet mix. Forecasts from other studies and independent sources are also presented to provide a point of reference from which to compare the updated forecasts.

### **1.3.7 Forecasting Methodologies**

Methodologies commonly used for forecasting include trend analysis and market share analysis. All such methodologies are based on the premise that historical trends or relationships can be used to predict future activity levels. A description of each methodology is provided as follows:

- **Trend Analysis.** This type of analysis is one of the simplest forecasting techniques. The method fits growth lines to historical data and extends them into the future. This methodology assumes that the same factors affecting aviation activity in the past will continue to do so in the future.
- **Market Share Analysis.** This analytical tool involves review of historical activity levels at the airport as a percentage share of a larger market. For instance, the number of aircraft operations at the airport is compared to the total number of aircraft operations in the region, state, or nation. This relative share factor is then held as a constant and increased in direct proportion to the projected growth within the region, state, or nation to determine likely future activity levels at the airport.

These two analytical techniques assume that previous relationships will continue to exist in the future. Consequently, these methods do not consider the effects of more-aggressive marketing, increased service levels, or other changes occurring independently of past relationships. To supplement this type of analysis, the complimentary approach of forecasting involves professional judgment. During this phase, decisions about the validity of forecasts resulting from the analytical analyses are made. Intangible factors are then considered when developing a preferred forecast.

### **1.3.8 Aircraft Operations**

This section addresses forecasts of aircraft operations. These forecasts provide the basis for estimating future aircraft operational levels and their associated noise impacts to the land uses surrounding the airport.

#### **1.3.8.1 Previous Forecasts of Aircraft Operations**

Independent forecasts of aircraft operations obtained and reviewed are described below:

- **McClellan-Palomar Airport Master Plan (1997).** The forecast of aviation activity as published for the 1997 McClellan-Palomar Airport Master Plan developed by Coffman Associates, Inc., was reviewed and analyzed. The forecast presented projections of aircraft operational levels, passenger enplanements, and based aircraft counts for the forecast years 2000, 2005, 2010, and 2015. The aircraft operational forecast for commercial, air taxi, general aviation, and military operations is shown in Table 1.3.

**Table 1.3**  
**1997 MASTER PLAN FORECAST**

	2000	2005	2010	2015
<b>Annual Itinerant Operations</b>				
Commercial	6,534	8,182	9,650	10,484
Air Taxi	12,683	14,546	15,745	15,726
General Aviation	150,800	159,800	170,400	182,000
Military	2,800	2,800	2,800	2,800
<b>Annual Local Operations</b>				
General Aviation	74,200	75,200	76,600	78,000
Military	100	100	100	100
<b>Total Annual Operations</b>	<b>247,117</b>	<b>260,628</b>	<b>275,295</b>	<b>289,110</b>

SOURCE

1997 McClellan-Palomar Airport Master Plan, Coffman Associates, Inc.

Over the 15-year forecast period of 2000 through 2015, the average annual compound growth rate of all aircraft operations was reported to be 1.05 percent. Projected average annualized compound growth rates for commercial operations of aircraft having 60 seats or more was 3.20 percent and air taxi operations was reported to be 1.44 percent for the same period. Local general aviation operations were projected to increase at a rate of approximately 1 percent, whereas itinerant general aviation operations were projected to increase at a rate of approximately 1.3 percent annually. In keeping with standard practices of forecasting military operations at civilian airports, local and itinerant military operations were held constant throughout the entire forecast period.

Based on this review, it is apparent that the Master Plan's forecast of commercial operations does not adequately reflect current market conditions, the adverse effects of September 11, or other factors. Likewise, variations in growth characteristics of local and itinerant general aviation and military aircraft operations, as well as the evolving air taxi market, would suggest that a revised and updated forecast of aircraft operations is currently warranted. That said, overall annualized operations levels for all aircraft appear to fall within 5 to 13 percent of current projects as listed in the TAF for the airport.

- **FAA Terminal Area Forecast.** The TAF projects aircraft operations at CRQ to increase to approximately 297,000 in 2020 from their current level of approximately 204,000 operations in 2002. The average annual growth rate associated with this forecast is approximately 2.1 percent.
- **FAA Aerospace Forecasts, FY 2003-2014 (March 2003):** Using the FAA's Aerospace Forecast for Fiscal Years (FY) 2003-2014, average annual compound growth rate projections of commuter/air taxi operations and general aviation operations were developed for the forecast period (2002-2013). These FAA growth rates were applied to the actual respective activity levels for 2002 and have grown outward to 2013.



### 1.3.8.2 Updated Forecast of Commercial Operations

Commercial operations at CRQ consist of scheduled service performed by commuter aircraft of fewer than 60 seats. Table 1.4 and Figure 1.4 present forecasts of commercial operations developed using typical aviation activity forecasting techniques along with the FAA's TAF. These forecasts consist of a market share of commuter/air taxi operations to national, state, and market-specific state operational levels, a 10-year trend line, and a forecast based on growth rates presented in the *FAA Aerospace Forecasts for Fiscal Years 2003-2014*.

When comparing and analyzing the various forecast extrapolations shown in Table 1.4 and Figure 1.4, it is apparent that use of the market share approach to project future aircraft operations yields a consistent estimate of future commercial operational levels. These forecasts, however, had wide variations when comparing average annual compound growth rates. Because of such variations, the market share forecasting technique was not considered a reliable forecasting tool for this forecasting effort.

When inspecting the TAF for the airport, the FAA's assumed quick recovery between 2002 and 2003 is most evident. This single event would yield a single-year increase rate of almost 36 percent. As history has shown, perhaps because of the extended economic recession or military operations overseas, the recovery did not occur. Further, the projected 2002 annual total of commercial operations at the airport as listed in the TAF was higher than the actual levels recorded. If, however, this single year-over-year increase is discounted, the average annual compounded projected rate for the 10-year period covering 2003–2013 is reduced to a more conservative 2.3 percent. This estimate is similar to the FAA's National Aerospace forecast of similar commercial operations of 2.78 percent for the same period.

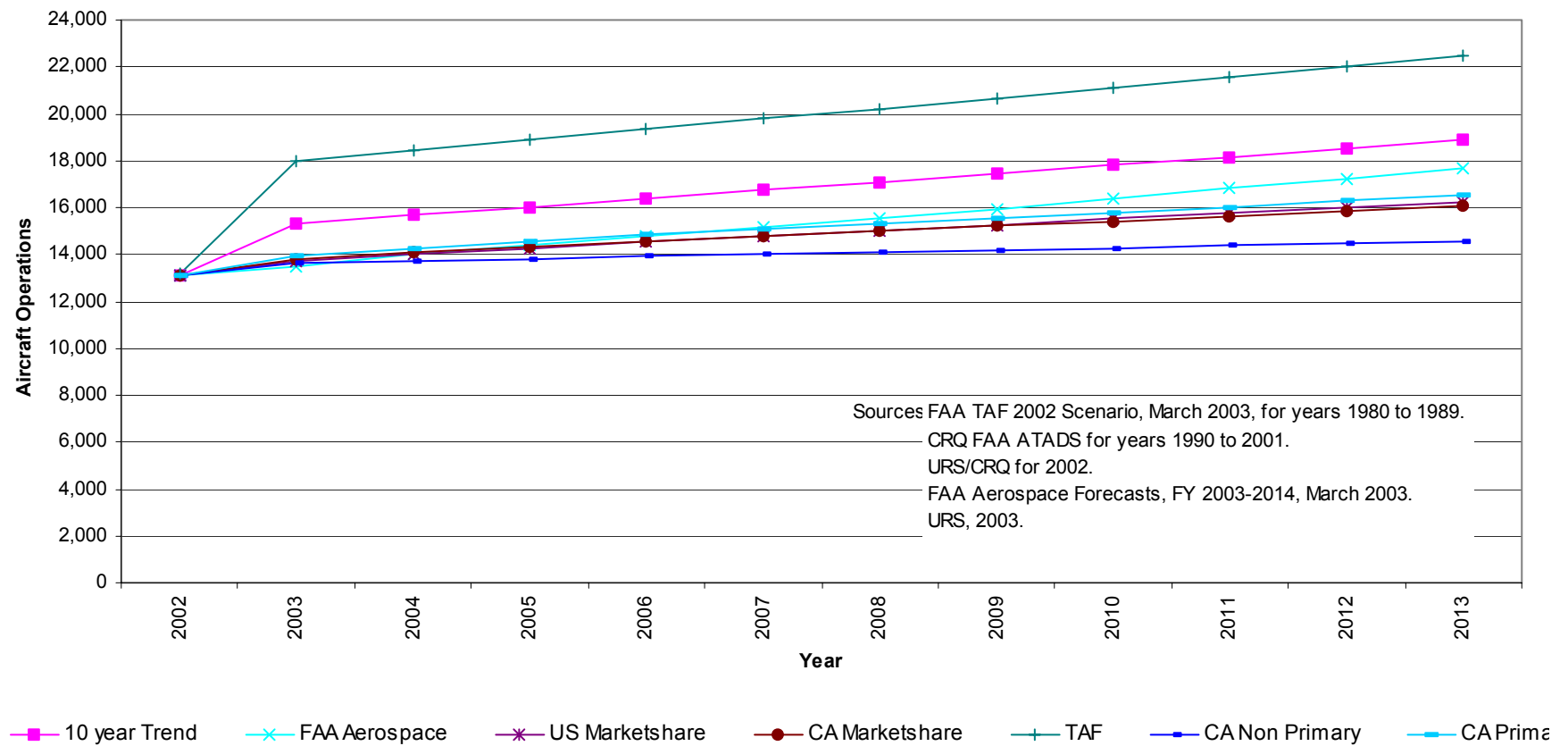
**Table 1.4**  
**COMMERCIAL OPERATIONS FORECASTS**

Year	CRQ TAF Forecast <sup>1</sup>	TAF Forecast of				CRQ 10-Year Trend Line <sup>2</sup>	FAA Aerospace Forecast 2003 <sup>3</sup>
		U.S. Market Share	California Market Share	California Primary Market Share	California Non-Primary Market Share		
2002	13,209	13,140	13,140	13,140	13,140	13,139	13,140
2003	17,964	13,740	13,803	13,921	13,628	15,326	13,469
2008	20,226	15,013	14,995	15,317	14,097	17,101	15,543
2013	22,488	16,258	16,053	16,548	14,566	18,877	17,701
<b>Average Annual Compound Growth Rate</b>							
2002-2013	4.96%	1.95%	1.84%	2.12%	0.94%	3.35%	2.75%

#### Sources

1. FAA 2002 Scenario TAF, March 2003.
2. McClellan-Palomar FAA ATADS Records.
3. FAA Aerospace Forecasts, FY 2003-2014, March 2003.

Figure 1.4  
COMMERCIAL OPERATIONS FORECASTS



Further comparison of the two remaining FAA-TAF and FAA Aerospace forecasts of future commercial activity at the airport for 2003 through 2013 reveals similar average annual growth rates of 2.27 and 2.76 percent, respectively. Examining the extrapolation of future commercial activity levels using the 10-year linear trend line technique yielded a similar average annual compound growth rate of 2.10 percent.

Based on current and near-term economic outlook for the airline industry and the absence of any known plans to expand the existing passenger terminal facility, an average annual growth rate of 3.0 percent was selected as the preferred forecast of commercial operations at the airport for the entire forecasting period of 2003 through 2013. This straight-line forecast, however, does not consider the potential effect of higher rates of commercial operation activity that may be generated by a new airline entrant or the potential for increased service by carriers currently serving the airport.

### **1.3.8.3 Updated Forecasts of General Aviation**

General aviation operations consist of arrivals and departures (and touch-and-go evolutions) by aircraft not classified as commercial or military.

Table 1.5 and Figures 1.5 and 1.6 present itinerant and local general aviation operations forecasts using typical aviation activity forecasting techniques along with the FAA's TAF. These forecasts consist of a market share of general aviation operations to national, state, and market-specific state operational levels, application of FAA Aerospace Forecast predicted growth rates, and a 10-year trend line for both itinerant and local operational levels.

As the table and figures indicate, the various forecast techniques result in widely disparate results that appear to have little correlation. An alternative approach was also used to examine factors currently affecting general aviation activity at CRQ, California, and the U.S. as a whole using professional judgment regarding how these factors may influence future activity levels at CRQ. A review of historical levels of local and itinerant operations revealed two general trends. The first trend is one of declining operations through the early 1990s. The second trend is one of stabilization, then a general growth trend that lasted until 1999. From 2000 through 2002, activity levels again began to decline in concert with issues discussed previously.

When examining the projections of future itinerant and local general aviation activity levels using national, state, primary and non-primary market share methodologies, the annualized growth rates fall in the range of 0.72 to 1.36 percent. This is somewhat validated by the fact that on a national level, the FAA's 2003-2014 Aerospace Forecast anticipates that all general aviation operational activity will increase at an annualized rate of 1.3 percent. Inspection of the FAA's TAF for similar activity at this airport reveals predictions of continued activity growth for 2003 through 2013 in the range of 1.8 percent for itinerant operations and 2.5 percent for local operations. When examining the 10-year linear extrapolated trend line of past operations that have occurred at the airport yields a much higher growth rate of 2.4 percent. This extrapolated trend assumption is more in line with the FAA's anticipated growth rates for this sector on a regional and national level.

**Table 1.5**  
**GENERAL AVIATION OPERATIONS FORECASTS**

<b>Itinerant General Aviation Operations Forecasts</b>							
<b>Year</b>	<b>CRQ TAF<sup>1</sup></b>	<b>TAF Forecast of</b>				<b>CRQ 10-Year Trend Line<sup>2</sup></b>	<b>FAA Aerospace Forecast 2003<sup>3</sup></b>
		<b>U.S. Market Share</b>	<b>California Market Share</b>	<b>California Primary Market Share</b>	<b>California Non-Primary Market Share</b>		
2002	129,102	126,277	126,277	126,277	126,277	126,266	126,277
2003	131,664	127,520	127,638	128,114	127,518	147,988	125,898
2008	144,356	133,484	134,434	137,312	133,703	151,150	135,358
2013	157,068	139,454	141,231	146,516	139,889	154,311	144,388
<b>Average Annual Compound Growth Rate</b>							
2002-13	1.80%	0.91%	1.02%	1.36%	0.93%	1.84%	1.23%
<b>Local General Aviation Operations Forecasts</b>							
2002	62,816	62,774	62,774	62,774	62,774	62,918	62,774
2003	64,618	63,195	63,283	63,562	63,247	74,914	62,962
2008	73,629	65,570	65,804	67,505	65,581	78,239	67,627
2013	82,640	67,947	68,326	71,448	67,916	81,563	72,138
<b>Average Annual Compound Growth Rate</b>							
2002-13	2.52%	0.72%	0.77%	1.18%	0.72%	2.39%	1.27%

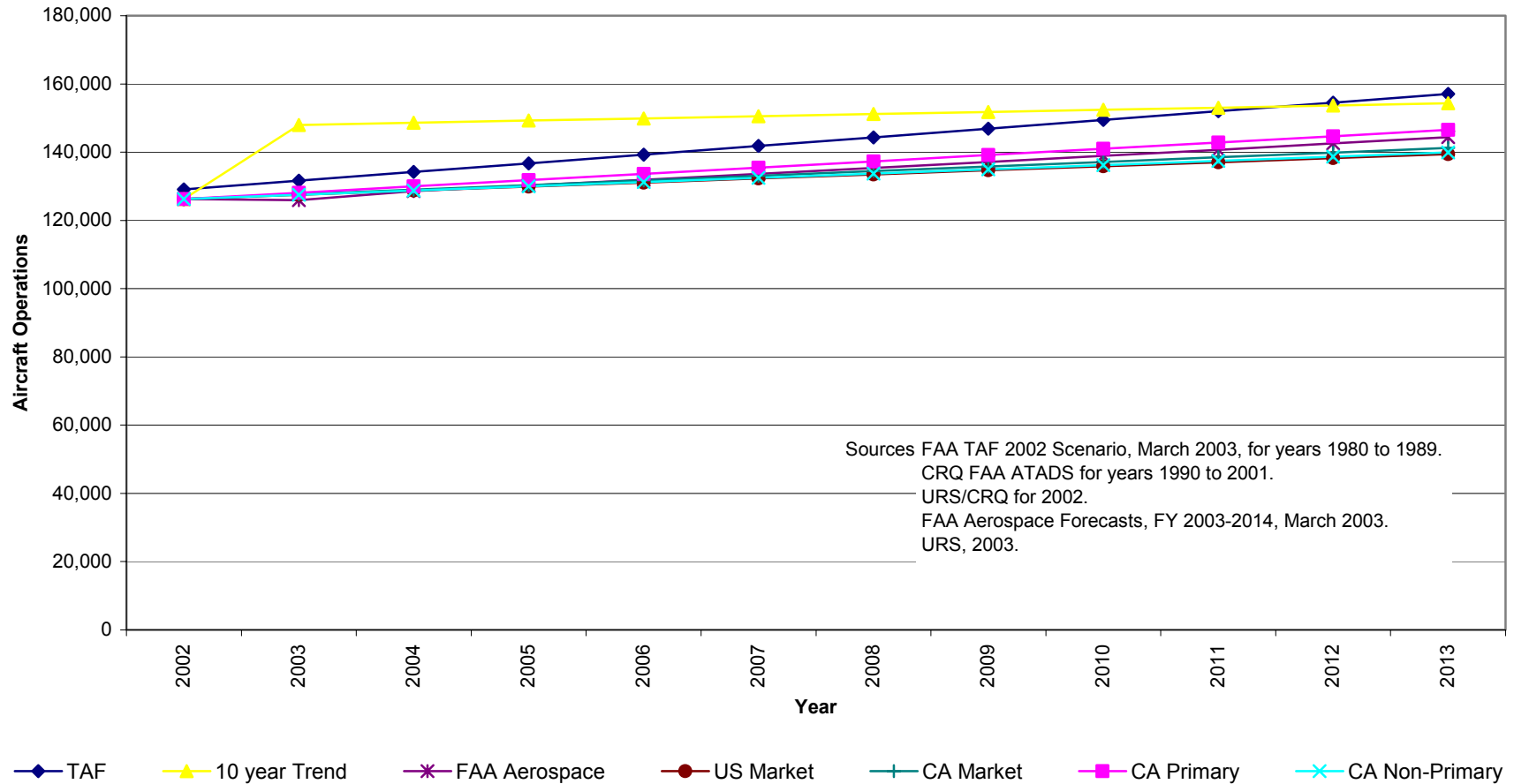
**Sources**

1. FAA TAF, 2002 Scenario, March 2003, FY.
2. McClellan-Palomar FAA ATADS Records.
3. FAA Aerospace Forecasts, FY 2003-2014, March 2003.

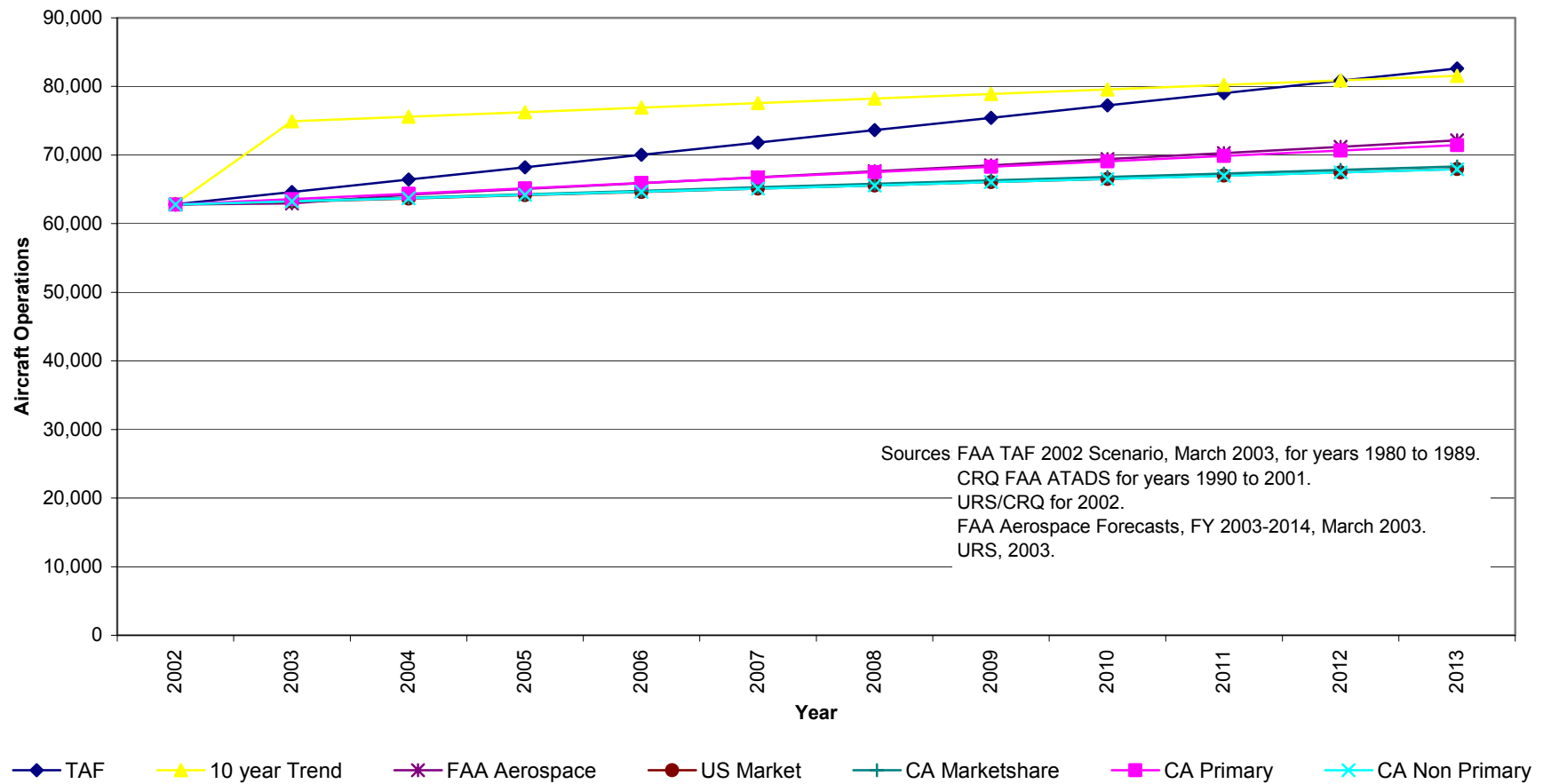
These various forecasts, however, do not consider potential dynamics or paradigm shifts of general aviation activity that may be influenced by but not limited to the following actions or developments:

- Increased levels of based aircraft at the airport.
- Loss of based aircraft to other nearby airports.
- Development of amenities and related services for larger corporate jets.
- Competitive fuel pricing.
- Escalation of the price of aviation fuel.
- Unforeseen changes in the economy.
- Development of one or more locally based corporate jet fleets.
- Increased runway length.

Figure 1.5  
ITINERANT GENERAL AVIATION FORECASTS



**Figure 1.6**  
**LOCAL GENERAL AVIATION OPERATIONS FORECAST**



The potential for general aviation operations at CRQ to increase in future years will most likely depend on the operating decisions of specific businesses at the airport, as well as development decisions of the owner/operator of the airport, the County of San Diego.

For the express purposes of this FAR Part 150 aircraft activity forecast, annualized growth rates of 2.0 percent for itinerant general aviation operations and 2.5 percent for local general aviation operations were selected as the preferred forecasts of general aviation operations at CRQ for the entire forecasting period of 2003 through 2013.

#### **1.3.8.4 Updated Forecast of Military Operations**

The number of operations conducted by military aircraft usually depends on training requirements of the units using CRQ. Consequently, the level of operations varies from year to year with little predictability. Therefore, the FAA usually projects military operations at an airport to remain flat or near the most recent historical level throughout the forecasting period. This is also the recommended method to project military aircraft operations at CRQ. The recommended forecast of military aircraft operations at CRQ throughout the forecast period is 1,892 itinerant and 72 local operations.

#### **1.3.8.5 Resultant Average Annualized Growth Rates**

To develop a complete synopsis of anticipated levels of aircraft operational activity at the airport, a wide variety of aviation activity forecasts previously developed by others was collected, compiled, and reviewed. Such forecasts included projections developed as part of the FAA's national, state, and airport-specific TAFs, the FAA's FY 2003-2014 Aerospace Forecasts, and CRQ's 1997 Master Plan.

As part of reviewing the FAA's TAF projections for California, two sub-categories of the aircraft operations projections for the state were compiled based on the FAA's National Plan of Integrated Airport Systems (NPIAS) airport classifications system of Primary and Non-Primary airports. The latest NPIAS lists CRQ as a Primary Airport. Using the state, Primary, and Non-Primary classifications, separate summations of TAF operational projections for the respective airports were created to examine market-share projections of future aircraft operations at CRQ. A 10-year trend analysis using linear projection techniques was also used for further comparison to all other forecasts.

A comparison of the various projected average annual compounded growth rates for each respective forecast is presented in Table 1.6.

#### **1.3.8.6 Forecast of Total Operations**

Applying varying average annualized growth rates to the 2002 aircraft operational totals, a preferred forecast of aviation activity for the CRQ FAR Part 150 Study Update was developed for the 10-year forecast period of 2003 through 2013. For this forecast, itinerant commuter operations through the forecast period were projected to increase at an average annual growth rate of 3.0 percent. Itinerant and local general aviation operations were projected similarly using growth rates of 2.0 and 2.5 percent, respectively.

The preferred FAR Part 150 forecast for total aircraft operations, including scheduled passenger airlines, general aviation, and military, is presented in Table 1.7.

**Table 1.6  
AVERAGE ANNUAL  
COMPOUND GROWTH RATES  
2003-2013**

Forecasts	Commercial Operations	Itinerant General Aviation Operations	Local General Aviation Operations
URS Preferred	3.00%	2.00%	2.50%
CRQ TAF	2.27%	1.78%	2.49%
10-Year Trend Analysis	2.10%	0.41%	0.85%
FAA Aerospace Forecasts	2.77%	1.37%	1.36%
1997 Master Plan Update	1.44%	1.26%	0.33%
<b>TAF Market Share Forecasts</b>			
All US Airports	1.70%	0.90%	0.73%
All CA Airports	1.52%	1.02%	0.77%
CA Primary Airports	1.74%	1.35%	1.18%
CA Non Primary Airports	0.66%	0.93%	0.71%

SOURCE

URS Corporation, 2003

**Table 1.7  
AIRCRAFT OPERATIONS PREFERRED FORECAST**

Year	Itinerant Aircraft Operations				Local Aircraft Operations			TOTAL
	Commuter	General Aviation	Military	Total	General Aviation	Military	Total	
2002	13,140	126,277	1,892	141,309	62,774	72	62,846	204,155
2003	13,534	128,803	1,892	144,229	64,343	72	64,415	208,644
2008	15,690	142,208	1,892	159,790	72,799	72	72,871	232,661
2013	18,189	157,010	1,892	177,091	82,365	72	82,437	259,528
<b>Average Annual Compound Growth Rate</b>								
2003-13	3.0%	2.0%	0.0%	2.1%	2.5%	0.0%	2.5%	2.2%

SOURCE

URS Corporation, 2003

## 1.4 COMPARISON OF FORECASTS

When developing a forecast, it is helpful to compare the preferred forecast to the FAA's TAF forecast published specifically for the airport. As presented in Table 1.8 and Figure 1.7, the preferred



forecast is approximately 20 percent below the TAF forecast of commercial operations at CRQ and over 10 percent lower than the TAF forecast of itinerant and local general aviation operations.

### **1.4.1 Commercial Operations**

Inspection of the FAA's TAF for CRQ reveals that the largest projected increase in commercial (commuter) operations was to occur between 2002 and 2003. Referencing the FAA's ATAD data for the first six months of 2003, it is evident that the year-over-year annualized growth rate of 35 percent for commercial operations has not materialized. In fact, commercial operations at CRQ have increased at a moderate rate of only 5 percent. This TAF projection anomaly will have the direct effect of projecting higher operational levels for the 10-year period of 2003 through 2013 and is therefore considered unrealistic for this forecasting effort.

The comparison of the preferred 3.0 percent average annual growth rate of commercial operations growth to that of the CRQ TAF is shown in Table 1.8. As illustrated, the projections of commercial operations throughout the 10-year forecast period vary by as much as 19.0 percent.

### **1.4.2 General Aviation Operations**

Similar to the FAA's TAF for general aviation operations at CRQ, the projected increase in local and itinerant general aviation operations was projected to occur between 2002 and 2003. The FAA's ATAD data for the first six months of 2003 indicate that these general aviation operations decreased by approximately 9.0 percent. Although operations are down approximately 9.0 percent, the preferred annualized forecast yields operational levels are similar to the FAA's TAF general aviation operational forecast for the same period.

The comparison of the preferred 2.5 and 2.0 percent average annual growth rate for local and itinerant general aviation operations at CRQ TAF is shown in Table 1.8 and Figures 1.8 and 1.9. As illustrated, the projections of local and itinerant general aviation operations throughout the 10-year forecast period yield similar results and vary by as little as 0.04 percent.

## **1.5 FLEET MIX FORECAST**

Currently, neither America West nor United Express, CRQ's two scheduled carriers, are operating regional jet flights at CRQ. It is anticipated that both will shift to regional jet aircraft in the future. However, the likelihood of regional jet operations at this airport will be dependent primarily on overcoming existing runway length constraints while satisfying FAA-mandated runway safety area design requirements. At its current length of 4,900 feet, use of larger regional jet aircraft having higher approach speeds and wider wingspans may require modifications of current FAA design standards and/or limiting the operational weight of the aircraft on departure.

**Table 1.8**  
**COMPARISON TO FAA TAF AND**  
**URS ADJUSTED TAF FORECAST**

Year	Itinerant Commercial Operations		URS Forecast Difference Compared to TAF
	URS*	TAF	
2002	13,140	13,209	-0.52 %
2003	13,534	17,964	-24.66 %
2008	15,690	20,226	-22.43 %
2013	18,189	22,488	-19.12 %
<b>Average Annual Compound Growth Rate</b>			
2002-2003	3.00 %	6.34 %	
2003-2008	3.00 %	2.40 %	
2008-2013	3.00 %	0.97 %	
2002-2013	3.00 %	4.96 %	
<b>Itinerant General Aviation Operations</b>			
2002	126,277	129,102	-2.19 %
2003	128,803	131,644	-2.16 %
2008	142,208	144,356	-1.49 %
2013	157,010	157,068	-0.04 %
<b>Average Annual Compound Growth Rate</b>			
2002-2003	2.00 %	1.97 %	
2003-2008	2.00 %	1.86 %	
2008-2013	2.00 %	1.70 %	
2002-2013	2.00 %	1.80 %	
<b>Local General Aviation Operations</b>			
2002	62,774	62,816	-0.07 %
2003	64,343	64,618	-0.43 %
2008	72,799	73,629	-1.13 %
2013	82,365	82,640	-0.34 %
<b>Average Annual Compound Growth Rate</b>			
2002-2003	2.50 %	2.90 %	
2003-2008	2.50 %	2.60 %	
2008-2013	2.50 %	2.30 %	
2002-2013	2.50 %	2.50 %	

SOURCE

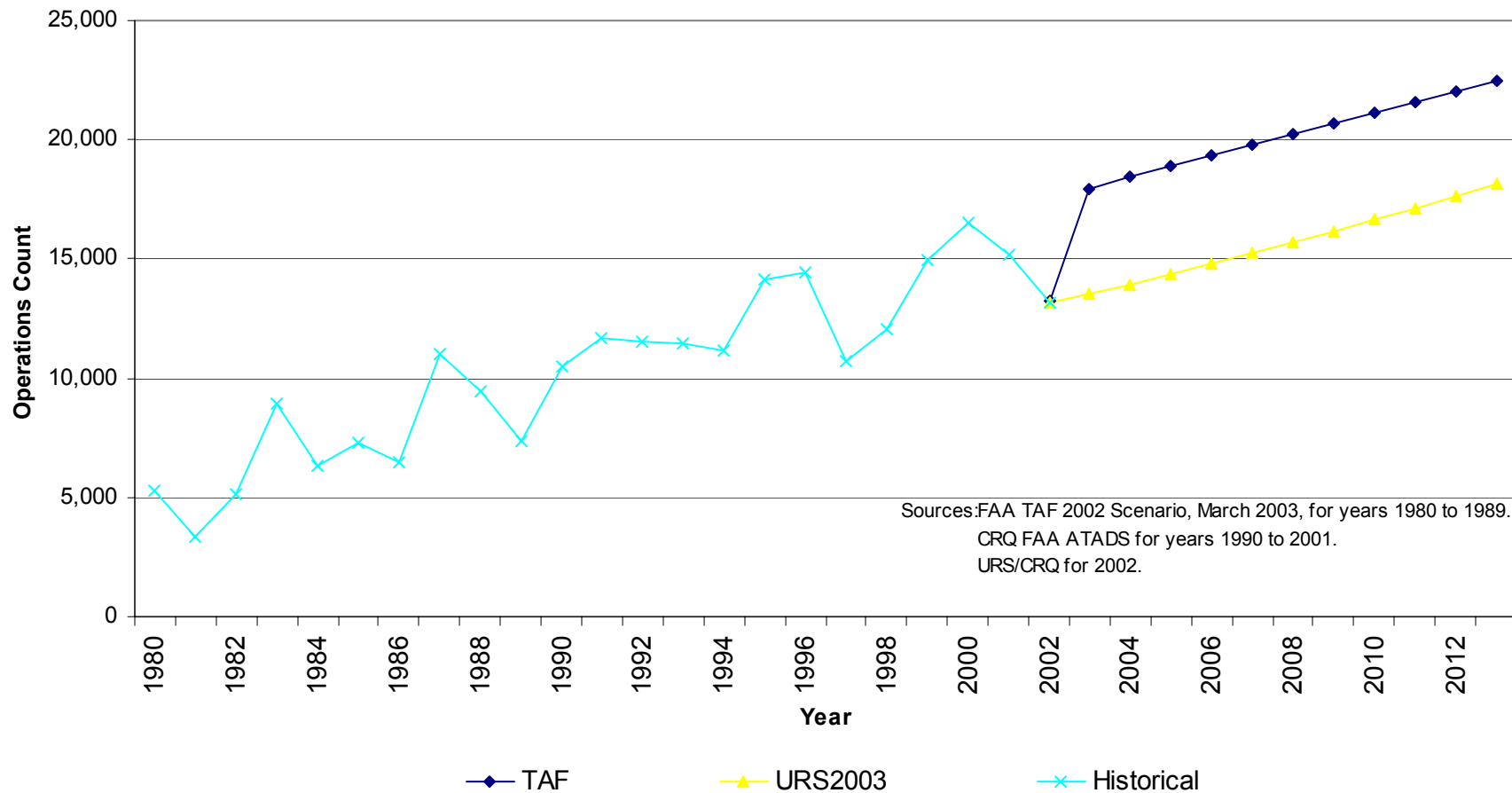
URS Corporation, 2003

FAA 2002 Scenario TAF, March 2003.

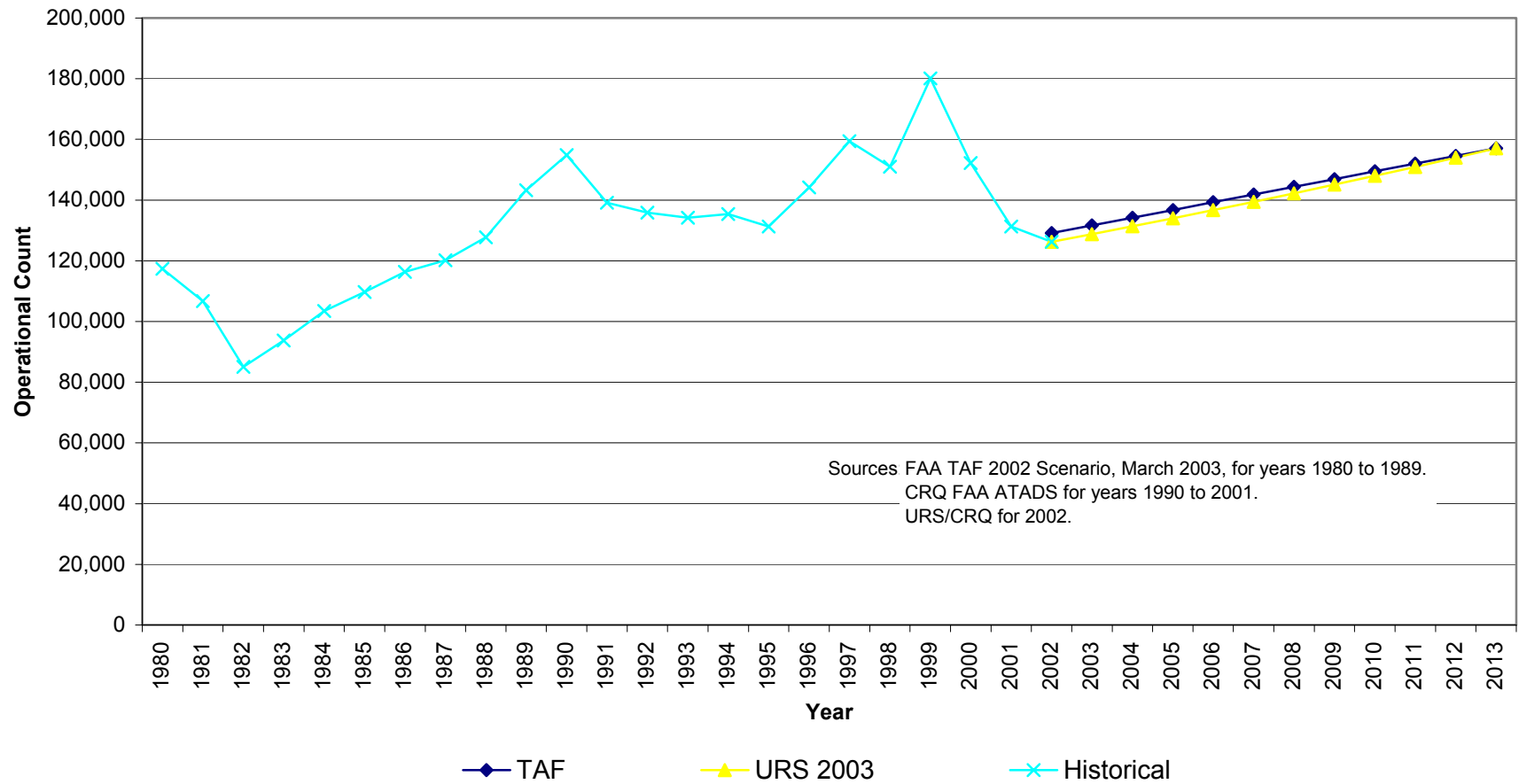
NOTE

\*2002 actual commercial operations.

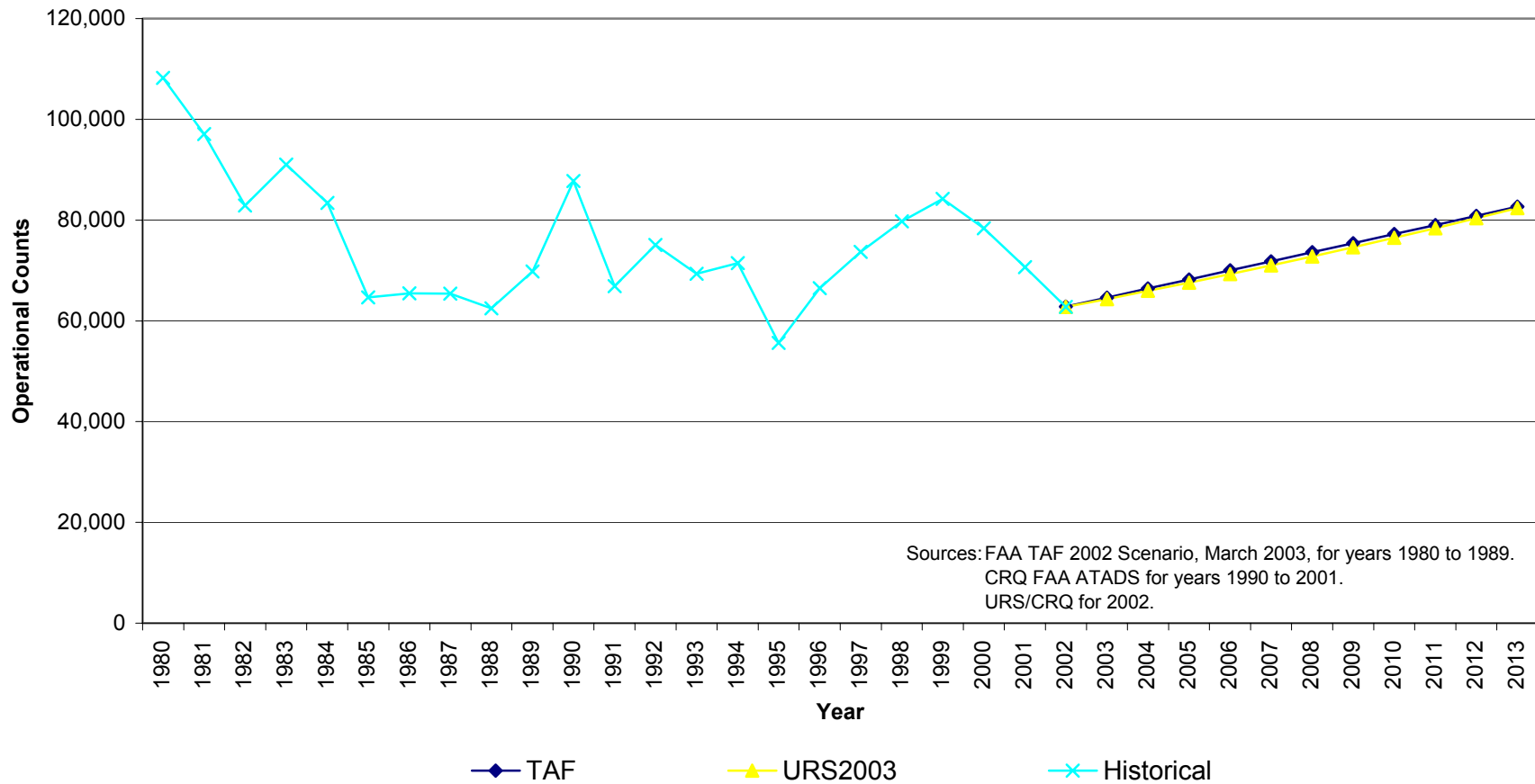
**Figure 1.7**  
**PREFERRED COMMERCIAL OPERATIONS FORECASTS**



**Figure 1.8**  
**PREFERRED ITINERANT GENERAL AVIATION OPERATIONS FORECASTS**



**Figure 1.9**  
**PREFERRED LOCAL GENERAL AVIATION OPERATIONS FORECASTS**



CRQ has addressed existing non-standard runway safety area issues by using declared distance criteria and applying slight increases in published landing visibility minimums for its only precision instrument approach to the runway.

If the runway was extended to accommodate the full landing and takeoff runway length requirements for today's regional jets (a minimum of 5,500 to 6,000 feet) while satisfying FAA runway safety area requirements, introduction of regional jets at CRQ would then offer additional city-pair opportunities while increasing the level of service to air travelers using CRQ.

Assuming that there are no imminent plans to extend the runway or to modify CRQ's existing geometric design as necessary to accommodate sustained operations by larger aircraft having Airplane Design Group C-II operational requirements, the commercial commuter fleet mix for the two future forecast years was left unchanged. This projected general aviation fleet mix may change, however, if one or more of the following events occurred:

- Increase of based corporate jets.
- Migration of light single- and multi-engine based aircraft to other nearby airports.
- Increase of the airfield geometry (runway centerline-to taxiway centerline separation).
- Provision of fully compliant runway safety areas.

Projections of fleet mix at CRQ are presented in Table 1.9.

**Table 1.9**  
**FLEET MIX FORECAST**

INM Aircraft Type	Forecast Year								
	2003			2008			2013		
	Itinerant	Local	T&G	Itinerant	Local	T&G	Itinerant	Local	T&G
<b>Commuter/Air Taxi Fleet Mix</b>									
LEAR35	20%			20%			20%		
MU3001	12%			12%			12%		
CNA750	6%			6%			6%		
CL600	5%			5%			5%		
CNA500	2%			2%			2%		
CIT3	2%			2%			2%		
GIV	2%			2%			2%		
GIIB	1%			1%			1%		
CL601	1%			1%			1%		
DHC8*	12%			12%			12%		
EMB120*	31%			31%			31%		
DHC6	1%			1%			1%		
BEC58P	5%			5%			5%		

**Table 1.9  
FLEET MIX FORECAST  
(continued)**

INM Aircraft Type	Forecast Year								
	2003			2008			2013		
	Itinerant	Local	T&G	Itinerant	Local	T&G	Itinerant	Local	T&G
<b>General Aviation Fleet Mix</b>									
BEC58P	10%	1%	5%	10%	1%	5%	10%	1%	5%
CL600	4%			4%			4%		
CNA172	16%	51%	45%	16%	51%	45%	16%	51%	45%
CNA206	8%	27%	20%	8%	27%	20%	8%	27%	20%
CNA441	3%			3%			3%		
CNA500	7%			7%			7%		
CNA750	2%			2%			2%		
DHC6	5%	1%		5%	1%		5%	1%	
FAL20	1%			1%			1%		
GASEPF	12%			12%			12%		
GASEPV	8%			8%			8%		
GIIB	1%			1%			1%		
GIV	3%			3%			3%		
GV	1%			1%			1%		
IA1125	1%			1%			1%		
LEAR25	1%			1%			1%		
LEAR35	9%			9%			9%		
MU3001	6%			6%			6%		
Helicopter	2%	20%	30%	2%	20%	30%	2%	20%	30%
R22BII	40%	40%	40%	38%	38%	38%	35%	35%	35%
S300C/H269	54%	54%	54%	55%	55%	55%	58%	58%	58%
MD500D	1%	1%	1%	1%	1%	1%	1%	1%	1%
Bell206	2%	2%	2%	2%	2%	2%	2%	2%	2%
EC120	1%	1%	1%	1%	1%	1%	1%	1%	1%
AS350	0%	0%	0%	1%	1%	1%	1%	1%	1%
Bell222	2%	2%	2%						
MD902	0%	0%	0%	2%	2%	2%	2%	2%	2%

**Table 1.9  
FLEET MIX FORECAST  
(continued)**

INM Aircraft Type	Forecast Year								
	2003			2008			2013		
	Itinerant	Local	T&G	Itinerant	Local	T&G	Itinerant	Local	T&G
<b>Military Fleet Mix</b>									
C-9	9%			9%			9%		
C-2	9%			9%			9%		
C-12	45%		100%	45%		100%	45%		100%
CH-53E	19%			19%			19%		
OH-58	9%			9%			9%		
H-60	9%			9%			9%		

SOURCE

URS Corporation, 2003.

NOTE

\*Runway and Safety Area improvements may lead to commuter fleet conversion to regional jets.